



Do not confine your children to your own learning
for they were born in another time.

Chinese proverb

ALLERGIES

A Sensitive Child

From cradle cap to diaper rash, very young children are prone to several types of dermatitis. Until recently, though, allergic contact dermatitis was considered uncommon among this age group. Conventional wisdom held that young children's immune systems were too immature to be sensitized to allergens encountered through skin exposure. But new research casts doubt on conventional wisdom. In a study published in the January 2000 online version of *Pediatrics* at <http://www.pediatrics.org/>, researchers from the University of Colorado Health Sciences Center in Denver demonstrate sensitization at an early age. Their study is unique in that it focuses exclusively on children younger than five years.

At any age, dermatitis symptoms include skin reddening, scaliness, blistering, ulceration, and itching. With contact dermatitis, symptoms follow skin exposure to an irritant (which can affect anyone, regardless of immunological status) or an allergen (which only affects sensitized indi-

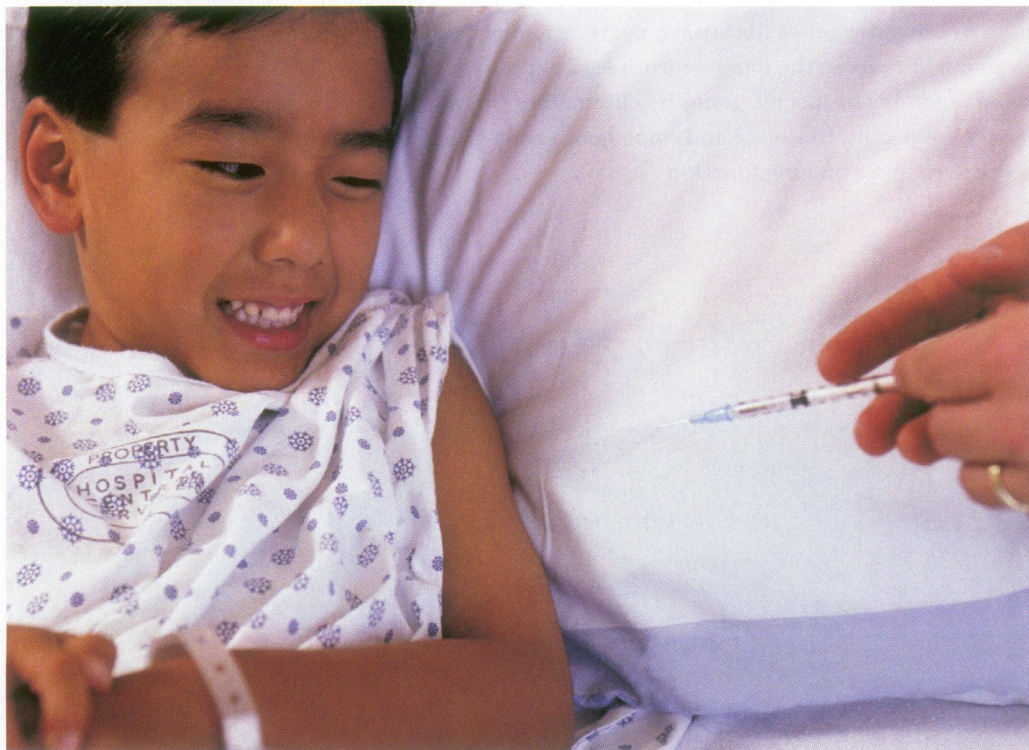
viduals). Sensitization occurs when an allergen seeps below the skin surface and is processed by Langerhans cells—immune system cells that carry an allergen fragment, or antigen, to T lymphocytes in the lymph nodes. When this occurs, cells called memory T lymphocytes are produced. These cells release cytokines that attract inflammatory cells, triggering dermatitis. "I think the reason why many people think that the risk of contact sensitization in children is lower than in adults has to do with the fact that people have always thought that the immune system of younger children wasn't capable of reacting to these agents," says Bernard A. Cohen, director of pediatric dermatology at the Johns Hopkins Children's Center in Baltimore, Maryland. "And the evidence doesn't support that at all."

The team of Colorado researchers, led by pediatrician Anna L. Bruckner, recruited 95 patients between six months and five years of age who did not have dermatitis. Each child had strips with 24 separate allergen patches affixed to his or her upper back, and the parents were instructed to remove the strips 48 hours later. Two to three days afterwards, the researchers

examined the children. Of the 85 children completing the study, nearly 25% exhibited sensitivity to one or more allergens. Nickel and thimerosal (a preservative used in vaccines) caused the most sensitization reactions, with 11 and 8 reactions, respectively. The researchers indicate that this finding dispels another misperception about sensitization in early childhood: that children have low exposure to contact allergens. On the contrary, nickel is often found in snaps, buckles, and jewelry (worn by caregivers or children themselves), and routine vaccinations ensure exposure to thimerosal.

However, sensitization does not automatically lead to dermatitis, says William L. Weston, a professor of dermatology and pediatrics at the University of Colorado School of Medicine and a coauthor of the study. "Sensitivity on the patch test system used in this study simply means you were sensitized in the past," he explains. "Future dermatitis depends upon sufficient exposure to the offending substance." Sufficient exposure varies individually; one person may develop dermatitis after a single exposure, another may require several contacts. Further, the time span between sensitization and repeat exposure is immaterial. "In contrast to antibody allergy, allergic contact dermatitis requires memory T lymphocytes," says Weston. "The memory lasts 30-plus years, perhaps a lifetime."

Of more immediate concern, allergic contact dermatitis may affect more children than expected. "This study means that allergic contact dermatitis in children is probably greater than previously suspected and occurs much [earlier] than anyone thought," Weston states. That can be important with regard to treatment, adds Cohen. "Where it makes a difference," he says, "is that if you don't recognize that infants and young children can develop contact allergy, then you may not look for an allergen, and you'd miss part of the treatment, which would be eliminating the allergen from the environment or avoiding it." —Julia R. Barrett



Early ouches. New research shows that children may experience early allergic sensitization from exposure to substances such as thimerosal (a component of vaccines) and nickel (found in buckles and snaps on clothing).